

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
SAN FRANCISCO BAY REGION**

ORDER NO. 89-177

**SITE CLEANUP REQUIREMENTS FOR:**

THE KOLL CENTER COMMUNITY ASSOCIATION &  
ALL OWNERS AT AND OF THE KOLL OAKMEAD CENTER  
(as listed in Attachment A)  
3350 SCOTT BOULEVARD  
SANTA CLARA, SANTA CLARA COUNTY

The California Regional Water Quality Control Board, San Francisco Bay Region (hereinafter called the Board) finds that:

1. **Site History** - The Koll Oakmead Center (KOC), located at 3350 Scott Blvd., Santa Clara, is a 30 acre condominium business park containing 65 individually owned buildings (see Figures 1 and 2). Since some individuals own more than one building, there are actually only 55 separate owners. Prior to KOC's construction in 1978 the area was not built upon.

An investigation initiated in 1986 by Monsanto Electronic Materials Company (Monsanto) found the groundwater beneath the southeast corner of the site to be polluted. The groundwater is primarily polluted with cis-1,2, dichloroethylene (cis-1,2 DCE), 1,1 dichloroethylene (1,1 DCE), trichloroethene (TCE), and vinyl chloride.

Monsanto was a tenant of Buildings #1 and #2 from October 1979 to May, 1988 and used the building as a silicon wafer reprocessing and distribution center. To date, no evidence indicates that Monsanto used the organic chemicals found in the groundwater at the site.

Novellus Systems, Inc. (Novellus) subleased Buildings #1 and #2 from Monsanto from September, 1985 to May, 1988. Novellus used the buildings for research and development. To date, no evidence indicates that Novellus used the organic chemicals found in the ground water at the site.

Chemical use histories have not been requested from any of the KOC property owners. Therefore, to date no evidence indicates that any of the KOC owners used the organic chemicals found in the groundwater at the site. However, Provision C.2.b. of the Order will require a chemical use history from each of the KOC buildings.

2. **Designation of Discharger** - The highest levels of groundwater pollution are located beneath the commons area of the KOC. The commons area is owned by the Koll Center Community Association (KCCA) a non-profit corporation. The KCCA is named as a discharger because it is the owner of the commons area. The 55 individual building owners are named as dischargers because they are the controlling members of the KCCA.
3. **Initial 1986 Investigations** - Monsanto conducted a site assessment prior to subleasing Buildings #1 and #2 to Novellus. Building #1 contained an acid waste neutralization system and a clean room. Three groundwater monitoring wells and three soil borings were installed. Soil boring B-1 was drilled adjacent to the concrete sump in the acid room and contained 3 parts per billion (ppb) of TCE. No detectable concentrations of VOC's were found in the other soil samples.

Monitoring wells N-1 and N-3 were installed near Building #1. Monitoring well N-2 was installed regionally upgradient of Building #1 (see Figure 2). Water samples from well N-2 contained concentrations of cis-1,2 DCE up to 2,600 ppb, 1,1 DCE up to 14 ppb, TCE up to 250 ppb, and vinyl chloride up to 100 ppb. Water samples from wells N-1 and N-3 contained VOC concentrations an order of magnitude less than the upgradient well N-2. These results appeared to indicate an upgradient source for the onsite groundwater pollution. However, more recent results from an investigation conducted by the Board in 1987 and 1988 indicate that the source of pollution appears to be on the KOC property (see Finding 4 below).

4. **Board 1987-1988 Investigation** - As discussed in Finding 3, the Board initially believed the onsite pollution was emanating from an upgradient source. However, reconnaissance water samples collected in 1988 by a Board contractor immediately upgradient from the KOC property do not contain any cis-1,2 DCE above detection levels (see Figure 3). The results of this investigation are contained in a report titled "Collection and On-site Analysis of Soil Gas and Groundwater Samples at Selected Sites, as per Specifications in the State Water Resources Control Board Contract Number 7-706-120-0 National Environmental Testing, Inc. September 22, 1988".

A summary of the Board investigation follows:

The immediate upgradient property to KOC is the Central Expressway, a four-lane road with a wide center divider. This roadway is over 100 feet wide. Due to potential local variations in groundwater gradients, the three properties across Central Expressway and the property immediately

upgradient from these three locations were all considered potential source locations.

Board staff undertook an investigation in June 1987 to determine site histories of manufacturing and chemical use at the four potential source locations. Site histories were received in July 1987 and did not indicate potential pollution sources at the sites.

Based on this result, the Board initiated its own investigation using Cleanup and Abatement Account funds. The reasons for a direct Board investigation included: (1) the likelihood of one or more innocent property owners/occupants; (2) the time involvement in negotiating for action by the parties involved; and (3) the time required to undertake the investigation and receive the results.

In 1988, the Board's contractor collected reconnaissance groundwater samples from 19 sampling locations on the north and south sides of Central Expressway and on the north and south sides of the suspect properties fronting on Central Expressway (see Figure 3). Concentrations found near the polluted well north of Central Expressway confirmed the existence of a pollutant plume and indicated one edge of that plume. Concentrations found in front and behind the potential source locations south of the Central Expressway located a previously unknown plume emanating from a further upgradient source. However, the source of the pollution found in well N-2 was not found.

5. **Shallow Groundwater Flow Direction** - Based on water levels in the three onsite monitoring wells and data from neighboring sites, shallow groundwater flow, beneath the site, is generally to the northeast. This flow regime is slightly east of the regional northerly flow towards the San Francisco Bay. Figure 2 (attached) shows the shallow groundwater flow direction beneath the KOC as N75 E. However, this potentiometric surface map is based on water levels from only three wells.

A more comprehensive potentiometric surface map of the shallow groundwater in the vicinity of the KOC was prepared by J.V. Lowney and Associates (Quarterly Groundwater Elevations Report for 4 Santa Clara Sites, June 5, 1989). This map is based on measurements of the 3 KOC wells and 24 additional wells to the south of KOC. The shallow groundwater flow direction shown on this map is N20 E for the KOC.

6. **Site Geology** - According to a 1987 report prepared by Weiss Associates for Monsanto, well logs indicate that the moderately permeable materials encountered in boreholes N-1, N-2, N-2A and N-3 are difficult if not impossible to correlate

between each other. Therefore, the upper 30 to 40 ft. of the subsurface can best be viewed as a zone containing a network of moderately permeable lenses within a matrix of low-permeability materials. The continuity and degree of interconnectedness of the lenses are not apparent from the geologic data, although some degree of continuity can be inferred based on the water chemistry data.

7. **Scope of This Order** - This Order contains a time schedule for the various tasks needed to characterize the soil and groundwater pollution at the site. Based on the results of the site characterization report, this Order may be amended in the future to include tasks to initiate remedial action and develop site cleanup alternatives.
8. The Board adopted a revised Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) on December 17, 1986. The Basin Plan contains water quality objectives and beneficial uses for South San Francisco Bay and contiguous surface and ground waters.
9. The existing and potential beneficial uses of the groundwater underlying and adjacent to the site include:
  - a. Industrial process water supply
  - b. Industrial service water supply
  - c. Municipal and Domestic water supply
  - d. Agricultural water supply
10. The dischargers threaten to cause or permit waste to be discharged or deposited where it is or probably will be discharged to waters of the State and creates or threatens to create a condition of pollution or nuisance.
11. This action is an order to enforce the laws and regulations administered by the Board. This action is categorically exempt from the provisions of the CEQA pursuant to Section 15321 of the Resources Agency Guidelines.
12. Ongoing interim containment and cleanup measures need to be continued to alleviate the threat to the environment posed by the migration of pollutants and to provide a substantive technical basis for designing and evaluating the effectiveness of final cleanup alternatives.
13. The Board has notified the dischargers and interested agencies and persons of its intent under California Water Code Section 13304 to prescribe Site Cleanup Requirements for the discharge and has provided them with the opportunity for a public hearing and an opportunity to submit their written views and recommendations.

14. The Board, in a public meeting, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED, pursuant to Section 13304 of the California Water Code, that the dischargers shall cleanup and abate the effects described in the above findings as follows:

**A. PROHIBITIONS**

1. The discharge of wastes or hazardous materials in a manner which will degrade water quality or adversely affect the beneficial uses of the waters of the State is prohibited.
2. Further significant migration of pollutants through subsurface transport to waters of the State is prohibited.
3. Activities associated with the subsurface investigation and cleanup which will cause significant adverse migration of pollutants are prohibited.

**B. SPECIFICATIONS**

1. The storage, handling, treatment or disposal of soil or groundwater containing pollutants shall not create a nuisance as defined in Section 13050(m) of the California Water Code.
2. The dischargers shall conduct monitoring and investigatory activities as needed to identify the source(s) of pollution, define the current and historical local hydrogeologic conditions, and define the lateral and vertical extent of soil and groundwater pollution. Should monitoring results show evidence of pollutant migration, additional characterization of pollutant extent may be required.

**C. PROVISIONS**

1. The dischargers shall submit to the Board acceptable monitoring program reports containing results of work performed according to a program as attached.
2. The dischargers shall comply with Prohibitions A.1., A.2., and A.3., and Specifications B.1. and B.2. above, in accordance with the following time schedule and tasks:

COMPLETION DATE/TASK

a. **COMPLETION DATE: November 1, 1989**

**TASK: RESPOND TO BOARD:** The Board understands that some or all of the individual owners may respond to this Order through the Koll Center Community Association. Each individual owner is to notify the Board, in writing, as to whether or not they will be responding to this Order through the Koll Center Community Association.

b. **COMPLETION DATE: December 15, 1989**

**TASK: PROPOSAL FOR SOIL AND GROUNDWATER POLLUTION CHARACTERIZATION:** Submit a technical report acceptable to the Executive Officer containing a proposal to identify the source(s) of soil and groundwater pollution, define the current and historical local hydrogeologic conditions and define the horizontal and vertical extent of the soil and groundwater pollution present in monitoring well N-2. As part of the source identification effort, the proposal shall include a task to identify current and historical chemical manufacturing, storage, handling and use activities at each of the KOC buildings and at other relevant properties that are now or historically may have been upgradient of monitoring well N-2.

c. **COMPLETION DATE: June 1, 1990**

**TASK: COMPLETION OF GROUNDWATER CHARACTERIZATION:** Submit a technical report acceptable to the Executive Officer documenting completion of the necessary tasks identified in the technical report submitted for Task C.2.b.

3. If the dischargers are delayed, interrupted or prevented from meeting one or more of the completion dates specified in this Order, the dischargers shall promptly notify the Executive Officer and the Board may consider revision to this Order.
4. Technical reports on compliance with the Prohibitions, Specifications, and Provisions of this Order shall be submitted monthly to the Board commencing on December 15, 1989 and covering the previous month. On a monthly basis

thereafter, these reports shall consist of a letter report that, (1) summarizes work completed since submittal of the previous report, and work projected to be completed by the time of the next report, (2) identifies any obstacles which may threaten compliance with the schedule of this Order and what actions are being taken to overcome these obstacles, and (3) includes, in the event of non-compliance with Provision C.2. or any other Provision of this Order, written notification which clarifies the reasons for non-compliance and which proposes specific measures and a schedule to achieve compliance. This written notification shall identify work not completed that was projected for completion, and shall identify the impact of non-compliance on achieving compliance with the remaining requirements of this Order.

5. The dischargers shall submit technical reports summarizing the status of compliance with the Prohibitions, Specifications, and Provisions of this Order on a quarterly basis, according to the schedule below, commencing with the report for the first quarter 1990, due April 30, 1990.

Quarter	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
Period	Jan.-March	April-June	July-Sept.	Oct.-Dec.
Due Date	April 30	July 31	October 31	January 31

**The quarterly reports shall include;**

- a. a summary of work completed since the previous quarterly report, and work projected to be completed by the time of the next quarterly report,
- b. water quality data for all existing and future A, B, and deeper zone monitoring and extraction wells as appropriate. See Table 1 (attached) for a list of monitoring wells and types of analysis,
- c. appropriately scaled and labeled maps showing the location of all monitoring wells, extraction wells, and existing structures,
- d. cross sections depicting subsurface geologic information and corresponding correlations based on boring data,
- e. updated water table and piezometric surface maps for all affected water bearing zones, and isoconcentration maps for key pollutants in all affected water bearing zones,

- f. a cumulative tabulation of all well construction data, groundwater levels and chemical analysis results for site monitoring wells specified in the sampling plan,
  - g. identification of potential problems which will cause or threaten to cause noncompliance with this Order and what actions are being taken or planned to prevent these obstacles from resulting in noncompliance with this Order, and
  - h. in the event of noncompliance with the Provisions and Specifications of this Order, the report shall include written justification for noncompliance and proposed actions to achieve compliance.
6. The dischargers shall submit to the Board, according to the schedule shown below, technical reports acceptable to the Executive Officer containing Quality Assurance Project Plans and Site Sampling Plans. The Quality Assurance Project Plans and Site Sampling Plans format and contents shall consider CERCLA regulations and guidance documents.

Technical Report

Date Due

- a. Quality Assurance Project Plan January 15, 1990
- b. Site Sampling Plan January 15, 1990
- c. Site Safety Plan January 15, 1990

7. All hydrogeological plans, specifications, reports, and documents shall be signed by or stamped with the seal of a registered geologist, engineering geologist or professional engineer.
8. All samples shall be analyzed by State certified laboratories or laboratories accepted by the Board using approved EPA methods for the type of analysis to be performed. All laboratories shall maintain quality assurance/quality control records for Board review.
9. The dischargers shall maintain in good working order, and operate, as efficiently as possible, any facility or control system installed to achieve compliance with the requirements of this Order.
10. Copies of all reports pertaining to compliance with the Prohibitions, Specifications, and Provisions of this Order, shall be provided to the following agencies:
- a. Santa Clara Valley Water District
  - b. Santa Clara County Health Department



- c. City of Santa Clara
- d. State Department of Health Services/TSCD
- e. U. S. Environmental Protection Agency, Region IX

The Executive Officer shall receive three copies of all correspondence, reports and documents pertaining to compliance with the Prohibitions, Specifications, and Provisions of this Order.

- 11. The dischargers shall permit the Board or its authorized representative, in accordance with Section 13267(c) of the California Water Code:
  - a. Entry upon premises in which any pollution sources exist, or may potentially exist, or in which any required records are kept, which are relevant to this Order.
  - b. Access to copy any records required to be kept under the terms and conditions of this Order.
  - c. Inspection of any monitoring equipment or methodology implemented in response to this Order.
  - d. Sampling of any groundwater or soil which is accessible, or may become accessible, as part of any investigation or remedial action program undertaken by the dischargers.
- 12. The dischargers shall file a report on any changes in site occupancy and ownership associated with the sites described in this Order.
- 13. If any hazardous substance, as defined pursuant to Section 25140 of the Health and Safety Code, is discharged in or on any waters of the state, or discharged and deposited where it is, or probably will be discharged in or on any waters of the state, the dischargers shall report such discharge to this Board, at (415) 464-1255 on weekdays during office hours from 8 a.m. to 5 p.m., and to the Office of Emergency Services at (800) 852-7550 during non-business hours. A written report shall be filed with the Board within five (5) working days and shall contain information relative to: the nature of waste or pollutant, quantity involved, duration of incident, cause of spill, Spill Prevention, Control, and Countermeasure Plan (SPCC) in effect, if any, estimated size of affected area, nature of effect, corrective measures that have been taken or planned, and a schedule of these activities, and persons/agencies notified.

14. The Board will review this Order periodically and may revise the requirements when necessary.

I, Steven R. Ritchie, Executive Officer, do hereby certify that the foregoing is a full, true and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on November 15, 1989.

Per AMH

Steven R. Ritchie  
Executive Officer

Attachments: Attachment A - list of owners  
Figure 1 - regional map  
Figure 2 - site map  
Figure 3 - map showing location of reconnaissance  
groundwater samples  
Table 1 - schedule for monitoring well sampling

# ATTACHMENT A KOLL OAKMEAD CENTER LIST OF OWNERS

David McGrath  
Tad Technical  
639 Massachusetts Ave.  
Cambridge, Mass 02139

John Bertucci  
MKS Instruments, Inc.  
6 Shattuck Road  
Andover, MA 01810

Walter/Mollard/Walter  
1127 Doyle Place  
Mountain View, CA 94040

David Lint  
19529 Chaffe Circle  
Groveland, CA 95321

Isam and Margurete Qubain  
1248 Reamwood Ave.  
Sunnyvale, CA 94086

Robert Meyer  
798 Vista Grande  
Los Altos, CA 94022

E.T. Systems, Inc.  
3350 Scott Blvd., 38  
Santa Clara, CA 95054

Robert Pierce  
Kainos  
541 Jefferson Ave.,  
Redwood City, CA 94062

I2 Inc.  
3350 Scott Blvd. #10  
Santa Clara, CA 95054

Hercules Michelis  
MTH Engineers, Inc.  
3350 Scott Blvd. #11  
Santa Clara, CA 95054

William Capogeannis  
OMNIYIG  
3350 Scott Blvd. #66  
Santa Clara, CA 95054

Wayne Mascia Associates  
4301 Great America Pkwy. #100  
Santa Clara, CA 95054

Alok Gupta  
American Properties  
3350 Scott Blvd., #15  
Santa Clara, CA 95054

Moore/Dryden  
Dryden Engineering  
3350 Scott Blvd., #18  
Santa Clara, CA 95054

Tom and Florence Mock  
3350 Scott Blvd., #17  
Santa Clara, CA 95054

John A. Shaban  
1680 Walgra Meadows Cir.  
Meadow Vista, CA 95722

Hunting Gate Management  
633 Menlo Ave.  
Menlo Park, CA 94025

Ovadia Mizrahi  
14250 Miranda Rd.  
Los Altos Hills, CA

K & W Company  
3350 Scott Blvd. #22  
Santa Clara, CA 95054

Raymond Handley  
Renault & Handley  
3350 Scott Blvd., #23  
Santa Clara, CA 95054

George & Norma Milner  
P.O. Box 1858  
Tahoe City, CA 95730

ISKRA Electronics  
222 Sherwood Ave.  
Farmingdale, N.Y. 11735

ACECOM Inc.  
3350 Scott Blvd. #27  
Santa Clara, CA 95054

R.E. Hartman  
Grubb & Ellis  
224 W. Brokaw Rd., #150  
San Jose, CA 95110

Marty Chiechi  
Cunningham Assoc.  
1267 Oakmead Parkway  
Sunnyvale, CA 94086

Steve Popell  
Thirty Properties  
625 Ellis St. #301  
Mt. View, CA 94043

Robert Slavik  
Brandt Systems  
3350 Scott Blvd. #31  
Santa Clara, CA 95054

Jim Kufis  
Thermonics  
3350 Scott Blvd., #32  
Santa Clara, CA 95054

Donald Murray  
National Scientific Labs  
3350 Scott Blvd. #33  
Santa Clara, CA 95054

Orion Systems  
3350 Scott Blvd. #34  
Santa Clara, CA 95054

S&R Enterprises  
6033 Yellow Bird Ct.  
San Jose, CA 95120

F.T. & P.J. Deverse  
525 Los Coches St.  
Milpitas, CA 95035

KCW Associates Inc.  
4962 El Camino Real #119  
Los Altos, CA 94022

Mr. & Mrs. David Hobson  
22655 Oak Crest Ct.  
Cupertino, CA 95014

Commart Properties  
4701 Patrick Henry Dr. #7  
Santa Clara, CA 95050

Gil Zukow  
WESTREP  
P.O. 3550  
Anaheim, CA 92801

Frank Shen  
533 Sinclair Frontage Rd.  
Milpitas, CA 95035

Rod Templeton  
43 Associates  
P.O. Box 3568  
Saratoga, CA 95070

IV C Investments  
3350 Scott Blvd. #44  
Santa Clara, CA 95054

Dean Markley  
Dean Markley Strings  
3350 Scott Blvd. #45  
Santa Clara, CA 95054

Chew & Offenbacker  
1605 Remunda Lane  
San Jose, CA 95112

Wheeler Coberly  
Coberly & Assoc.  
2100 E. Foothill Blvd.  
Pasadena, CA 91107

Jerry & Cynthia Eline  
719 Hermosa Way  
Menlo Park, CA 94025

Wayne Hargis  
4281 Dry Bed Ct.  
Santa Clara, CA 95054

Ross Marketing Associates  
3350 Scott Blvd. #51  
Santa Clara, CA 95054

Heinz & Elisabeth Rippstein  
3350 Scott Blvd. #52  
Santa Clara, CA 95054

Sutton O'Neal  
1569 Benton St.  
Sunnyvale, CA 94087

IMAG  
3350 Scott Blvd. #54  
Santa Clara, CA 95054

Andersen/McCall  
MANCO  
3350 Scott Blvd. #55  
Santa Clara, CA 95054

Marvin Paller  
Computer Prepared Accts.  
3350 Scott Blvd. #56  
Santa Clara, CA 95054

Frank Yu  
Yu & Assoc.  
3350 Scott Blvd. #57  
Santa Clara, CA 95054

Doug Healy  
Cupertino Capital  
21650 Stevens Creek  
Cupertino, CA 95014

Johnson & Dutton  
Cindel, Inc.  
3350 Scottt Blvd. #59  
Santa Clara, CA 95054

Maryles Casto  
Casto Travel  
3350 Scott Blvd. #62  
Santa Clara, CA 95054

Paul Utz  
P.O. Box 1604  
Tracy, CA 95376

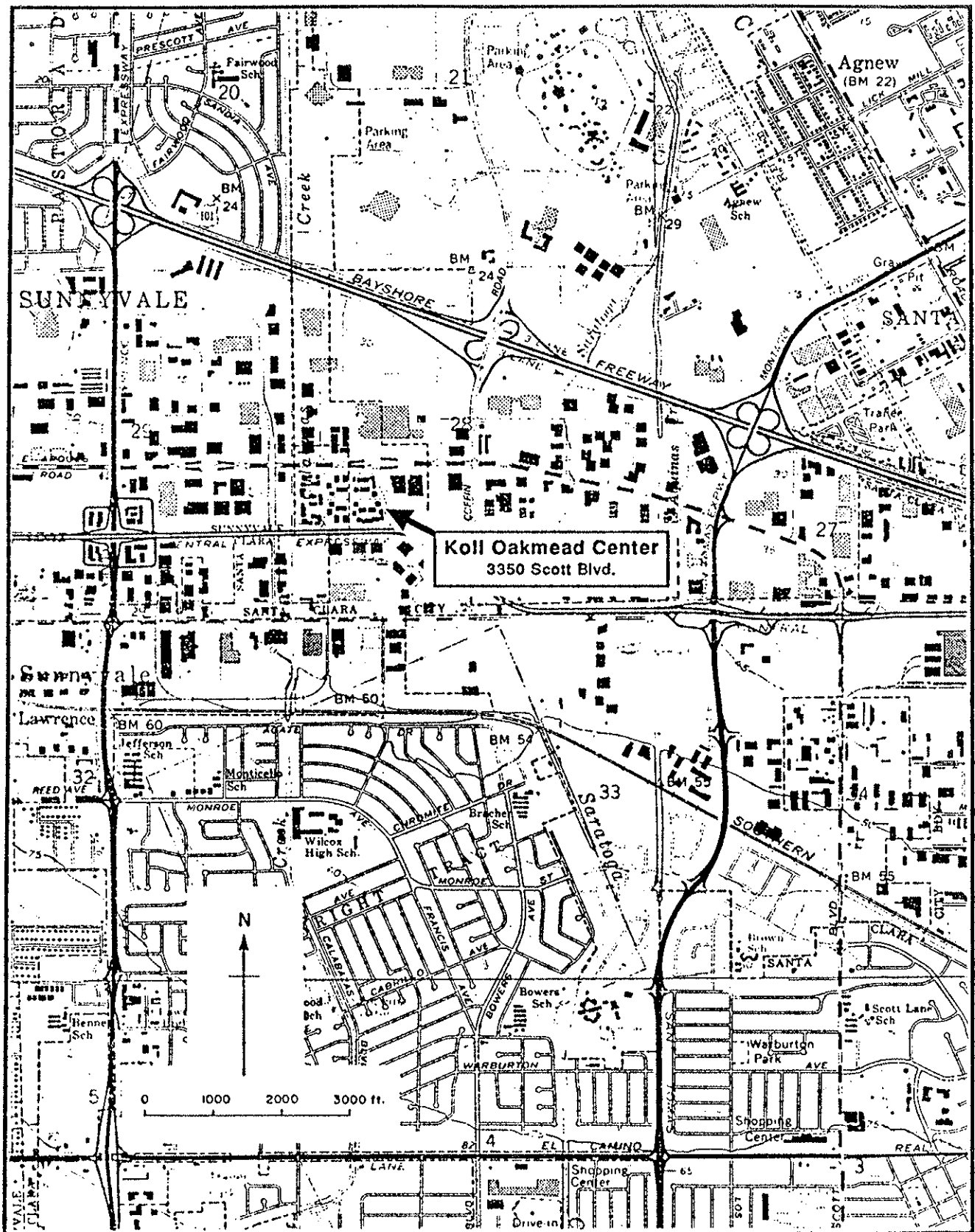


Figure 1. Regional Map showing location of the Koll Oakmead Center.

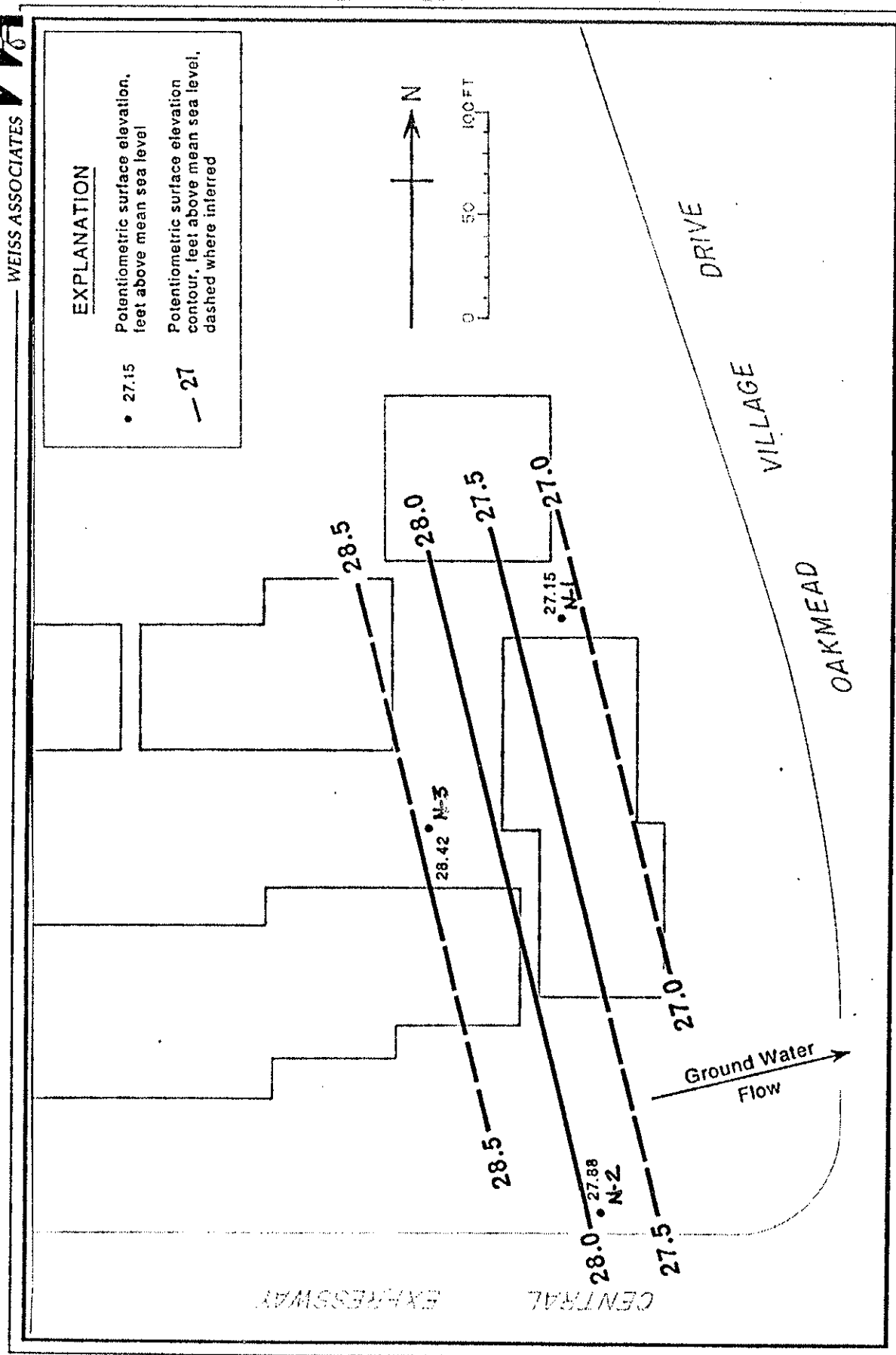


Figure 2. Site map of the Koll Oakmead Center showing approximate location of soil borings and monitoring wells.

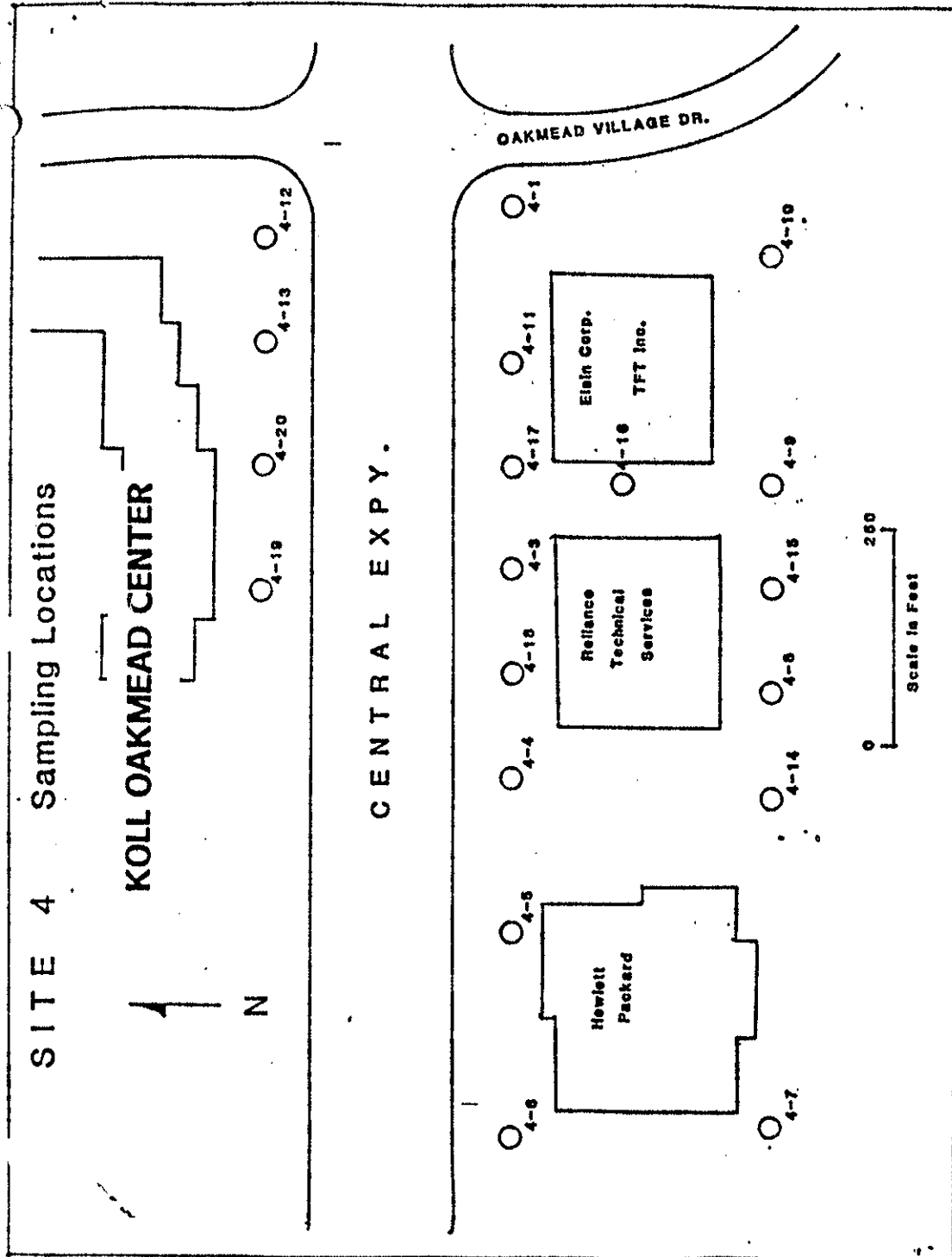


Figure 3. Map showing location of reconnaissance groundwater samples (from report titled "Collection and On-site Analysis of Soil Gas and Groundwater Samples at Selected Sites, as per Specifications in the State Water Resources Control Board Contract Number 7-706-120-0 National Environmental Testing, Inc. September 22, 1988").

KOLL OAKMEAD CENTER  
3350 SCOTT BLVD.  
SANTA CLARA, SANTA CLARA COUNTY

TABLE 1  
SCHEDULE FOR MONITORING WELL SAMPLING AND ANALYSIS

SAMPLING STATION >>>>	N-1,2,and 3....X			
TYPE OF SAMPLE	G			
EPA 8010 for: purgeable priority pollutants and Freon-113	Q			
GC/MS (EPA 8240) Open Scan	1/Y*			

LEGEND FOR TABLE 1

G = grab sample  
Q = quarterly  
1/Y = once per year

\* EPA 8010 not required for months when EPA 8240 is performed.